



Executive Summary

Highlights

The purpose of the Pennsylvania Wildlife Action Plan is *to conserve Pennsylvania's native wildlife, maintain viable habitat, and protect and enhance Species of Greatest Conservation Need*. With this emphasis on species, a total of 664 Species of Greatest Conservation Need were identified through the processes more fully discussed in this Plan (Chapter 1).

Species Accounts (Chapter 1, Appendix 1.4) provide a succinct summary of the status, threats, conservation actions, monitoring and research needs for all vertebrate species. Given the large number of invertebrate species, species accounts were only developed for federally or state-listed mussels.

Of the many threats identified for birds, mammals, reptiles, amphibians and fish, 53% belonged to four threat categories:

- Residential and Commercial Development (15%)
- Energy Production and Mining (13%)
- Pollution (13%)
- Invasive and Other Problematic Species, Genes and Diseases (12%)

Addressing these threats to vertebrate Species of Greatest Conservation Need, a total of 865 conservation actions were identified, and the more common actions were in these categories:

- Planning
(*e.g., development of best management practices*)
- Direct Management of Natural Resources
(*e.g., forest structure management, dam removal, invasive species control*)
- Law and Policy
- Technical Assistance
(*e.g., environmental review of project areas, technical assistance to landowners*)

For terrestrial and aquatic invertebrate species, specific conservation actions for individual species, families or informal taxonomic groups (Chapter 1; Leppo et al. 2015) and included the categories:

Species of Greatest Conservation Need	
	Total
Birds	90
Mammals	19
Fishes	65
Amphibians	18
Reptiles	22
Invertebrates	450
Grand Total	664



- Direct Management of Natural Resources
- Law and Policy
- Outreach
- Planning
- Data Collection and Analysis
- Land and Water Rights Acquisition and Protection
- Technical Assistance

These conservation actions provide guidance for managing the species and habitats identified in this Plan. Fish and wildlife, like humans, live in dynamic environmental conditions and thus this Plan must be able to adapt as new information is gathered about threats, species and their habitats. To do this, as discussed in Chapter 5, we will monitor the species and their habitats, as well as our progress towards implementing this Plan.

Opportunities for the Plan

This comprehensive Plan includes a list of Species of Greatest Conservation Need, extent and condition of their habitats, threats to those species and habitats, and conservation actions to address the threats.

In addition to these crucial components,

this Plan also provides guidance to monitor these actions and how the Plan will be updated to remain a viable conservation tool. The Plan also identifies who will be working to address these needs (Species Accounts), and how conservation partners and the public will be engaged in plan implementation. It's a lot for one plan! Yet, as discussed throughout the document, the need is great, and implications are substantial for these species. Over the next decade, implementing the conservation actions identified in this Plan may well establish the trajectory for recovery and protection of these species and their habitats for forthcoming decades. Thus, the 2015 Pennsylvania Wildlife Action Plan is an investment in conserving the Commonwealth's natural heritage for future generations.

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Background

State Wildlife Action Plans are non-regulatory, proactive natural resource management documents designed to prevent species imperilment, and recover endangered and threatened species (i.e., listed species). U.S. Fish and Wildlife Service approval of the Pennsylvania Wildlife Action Plan provides a nexus to federal funds through the State Wildlife Grants Program, the nation's core program for preventing species endangerment. In the late 1990s, the U.S. Congress recognized the high costs of recovering federally listed species. Generally, once listed, wildlife populations and habitats are often diminished to the extent that recovery can be expensive, bringing with them an uncertain future. Identifying at-risk species prior to federal listing, and proactively addressing their needs, could avert costly recovery efforts. Beyond financial considerations, ecologically, potential outcomes are better with larger populations. The health of wildlife is often an early indicator of disease and pollution that affect us all. State Wildlife Action Plans help identify problems affecting wildlife and, perhaps, address those



concerns before they impact humans. For species already listed as threatened or endangered, State Wildlife Action Plans provide a path for their recovery.

By October 2005, all states, the District of Columbia, and U.S. Territories had submitted a State Wildlife Action Plan, and all plans were approved by the U.S. Fish and Wildlife Service. As required by Congress, all State Wildlife Action Plans must be comprehensively reviewed and revised no less than every 10 years. In this context, the 2015 Pennsylvania Wildlife Action Plan is this comprehensive revision, developed with the vision of *healthy, sustainable native wildlife populations, natural communities and habitats in Pennsylvania*.

Early in the revision process, the framework for the 2015 Pennsylvania Wildlife Action Plan was established in the six Goals, their associated Objectives, and Strategies. These goals provide the focus for implementing the conservation actions. This is a Wildlife *Action* Plan and foremost is the conservation of native wildlife and associated habitats (Goal 1). To provide that conservation actions are appropriate and beneficial they need to be based upon sound science founded in surveys, monitoring and research (Goal 2). Many species occurring in Pennsylvania depend on habitats throughout the Northeast region. Thus, supporting management efforts outside of the Commonwealth are beneficial for our species. Growing collaboration among states and the District of Columbia is fostering range-wide conservation of species, supported by Goal 3. Implementing this plan will require broad support among partners and the public. Fostering this collaboration will involve communication, as well as legislative, administrative and financial support (Goals 4 and 5). Crucial to successfully implementing this Plan is distributing timely and well-designed information to Pennsylvania's citizens (Goal 6). An informed and motivated public will greatly enhance species and habitat management.

Goals of the 2015 Pennsylvania Wildlife Action Plan

1. Conserve Pennsylvania's native wildlife and its habitat by implementing conservation actions in the Wildlife Action Plan.
2. Base wildlife conservation decisions on the best available science, with an emphasis on Species of Greatest Conservation Need and their habitat.
3. Contribute to range-wide conservation of Species of Greatest Conservation Need.
4. Strengthen the state's capacity to conserve Pennsylvania's native wildlife.
5. Continue to improve cooperation within and between public agencies and other partners in wildlife conservation planning and implementation.
6. Develop a knowledgeable citizenry that supports and participates in wildlife conservation.

Revision Process

The 2015 Pennsylvania Wildlife Action Plan is the culmination of intensive effort by each Commission's staff, an Advisory Committee, the Pennsylvania Biological Survey (PABS), and several technical



committees (Acknowledgments) who guided revision of the 2005 Pennsylvania Wildlife Action Plan (formerly Comprehensive Wildlife Conservation Strategy). Members of these committees and their knowledge of the Commonwealth's natural resources established a firm foundation for the revision process.

Adopting the Association of Fish and Wildlife Agencies (AFWA) "Best Practices" guidance for State Wildlife Action Plans (AFWA 2012), the intent of this revision process was to be "*explicit and transparent about which criteria are used so it will be clear and repeatable to any user of a plan how priorities were established*" (*sensu* Groves 2003).

New for the 2015 Pennsylvania Wildlife Action Plan, and contributing to this "clear and repeatable" approach, was the flowchart for determining Species of Greatest Conservation Need (Chapter 1). Also, used for the first time was the NatureServe[®] Rank Calculator version 3.1 (Master et al. 2012) which provided a consistent process for evaluating a species' state conservation status, including a threats assessment. The Species of Greatest Conservation Need prioritization process, adapted from Bunnell et al. (2009), aimed to optimize use of existing species assessment data within a defensible, transparent prioritization scheme that focused on preventing imperilment, in addition to recovering critically imperiled species.

In the intervening years of the 2005 Pennsylvania Wildlife Action Plan, there has been a growing interest in more completely addressing species needs by reaching beyond state boundaries. Thus, in this revised Plan is a greater emphasis on Northeast (Maine to Virginia) regionally important species and habitats. Through the Northeast Association of Fish and Wildlife Agencies (NEAFWA), Northeast Fish and Wildlife Diversity Technical Committee (NEFWDTC), Regional Conservation Needs Grant Program, the Landscape Conservation Cooperatives, and the Northeast Climate Science Center, this regional focus has expanded and is discussed extensively in Chapters 3 and 4. To facilitate this regional approach to species conservation, the Northeast region also has adopted the Northeast Terrestrial and Aquatic Habitat Classification Systems (Anderson et al. 2013b) (Chapter 2), a standardized habitat classification system allowing comparisons of habitats among states. In 2005, this system was not available, thus confounding regional analyses. This system also allows standard species-habitat associations (Chapter 2).

A standardized threats classification system (Salafsky et al. 2008), endorsed by the International Union for the Conservation of Nature (IUCN 2012), also has been adopted by Northeastern states to facilitate consistency between State Wildlife Action Plans (Crisfield 2013). Among the many threats identified, climate change has over-arching impacts on natural resources, as well as human activities, and is thoroughly discussed in the 2015 Plan (Chapter 3). Recognizing the growing implications for Pennsylvania's fish and wildlife, in Amendment 2 (2010) to the 2005 Pennsylvania Wildlife Action Plan, Pennsylvania committed to more fully incorporating climate change into the next comprehensive revision of the Plan. Increasing availability of data, better climate models and a greater understanding of current and potential impacts of this threat are advances over the past 10 years. Regional analysis by the Northeast Climate Science Center (NECSC) (Staudinger et al. 2015a) has enhanced understanding of this threat to the Commonwealth's natural resources.



As developed for habitats and threats, common categories for conservation actions were incorporated into this Plan (Chapter 4). These categories were based largely on U.S. Fish and Wildlife Service Wildlife TRACS (Tracking and Reporting Actions for the Conservation of Species) (USFWS 2015).

The public will be vital to successful implementation of this Plan. To more fully understand public perspectives, attitudes of Pennsylvania residents towards nongame species were gathered through a structured survey (Responsive Management 2014) (Introduction; Chapter 8). The public 's perspectives also were gathered through review of a complete draft during the 30-day public comment period, prior to official submission to the U.S. Fish and Wildlife Service (Chapter 8; to be summarized after the comment period). To provide continued public engagement, Objectives and Strategies in Goal 6 were developed to guide public participation of the Plan.

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